

CLAIMS

What is claimed is:

1. A method for sensing position of a tape head in a tape drive comprising:
 - generating light;
 - eclipsing the light according to position;
 - sensing the amount of light not eclipsed; and
 - inferring position of the tape head according to the sensed amount of light.
2. The method of Claim 1 wherein eclipsing the light comprises monotonically blocking an amount of light according to position.
3. The method of Claim 1 wherein sensing the amount of light comprises:
 - receiving a non-eclipsed portion of the light; and
 - converting the non-eclipsed portion of the light to an electrical signal.
4. The method of Claim 1 wherein inferring position comprises:
 - receiving an indication of an amount of non-eclipsed light; and
 - conforming the electrical signal to a position function.
5. The method of Claim 4 wherein conforming the electrical signal comprises applying a linearity function to the signal.
6. The method of Claim 4 wherein conforming the electrical signal comprises applying a segmented position function.
7. An apparatus for sensing position comprising:
 - light source that generates light;
 - eclipsing device that eclipses light according to position;
 - light sensor that senses the amount of light not eclipsed; and
 - position unit that infers position according to the sensed amount of light.
8. The apparatus of Claim 7 wherein the eclipsing device is capable of monotonically blocking an amount of light according to position.

9. The apparatus of Claim 7 wherein the light sensor is capable of:
 - receiving a non-eclipsed portion of the light; and
 - converting the non-eclipsed portion of the light to an electrical signal.
10. The apparatus of Claim 7 wherein the position unit is capable of:
 - receiving an electrical signal indicative of the amount of non-eclipsed light; and
 - conforming the electrical signal to a position function.
11. The apparatus of Claim 10 wherein the position unit conforms the electrical signal by applying a linearity function to the signal.
12. The apparatus of Claim 7 wherein the position unit is capable of conforming the electrical signal to a segmented position function.
13. A tape drive comprising:
 - tape transport mechanism for transporting magnetic tape;
 - tape head;
 - actuator assembly capable of positioning the tape head;
 - optical position sensor mechanism that generates a position signal according to the position of the tape head; and
 - position controller that controls the actuator assembly according to the position signal.
14. The tape drive of Claim 13 wherein the optical position sensor mechanism comprises:
 - light-source that generates light;
 - flag that eclipses light according to the position of the tape head; and
 - detector that senses the amount of light not eclipsed.
15. The tape drive of Claim 14 wherein the light source comprises a light emitting diode.
16. The tape drive of Claim 14 wherein the flag comprises a tapered slot for monotonically blocking an amount of light according to the position of the tape head.
17. The tape drive of Claim 14 wherein the detector comprises a photodiode.

18. The tape drive of Claim 14 wherein the position controller is capable of:
receiving an electrical signal indicative of the amount of light sensed by the detector;
and
conforming the electrical signal to a position function.
19. The tape drive of Claim 14 wherein the position controller comprises:
processor for executing an instruction sequence;
program memory; and
position function conformer instruction sequence that is stored in the program
memory.
20. The tape drive of Claim 14 wherein the light source and the detector are collectively
housed in opposition to each other.